

REMARKS

The Office Action dated January 18, 2006, has been received and carefully noted. Applicant respectfully requests reconsideration of this application in view of the following remarks.

No claims have been amended in this response. Thus, Claims 1, 4-9, 11 and 12 are currently pending in the application and subject to examination.

Rejection under 35 U.S.C. § 103(a)

Claims 1, 4-9, 11, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe et al. (U.S. Patent No. 5,767,806, hereinafter "Watanabe") in view of Kobayakawa et al. (U.S. Patent No. 6,058,318, hereinafter "Kobayakawa"). Applicant respectfully traverses this rejection.

Claim 1 sets forth at least an adaptive array apparatus that includes a plurality of radio units, each having a transmitting unit, a receiving unit, and an antenna. The adaptive array apparatus comprises storing means for storing a separate compensation value for each radio unit, each compensation value reflecting phase propagation characteristics of the receiving unit and the transmitting unit in the corresponding radio unit, compensating means for compensating, for each radio unit, a phase amount used when generating a directivity pattern for an output signal by adding the compensation value corresponding to the radio unit to the phase amount, and generating means for generating the compensation value for each radio unit in accordance with the phase propagation characteristics of the receiving unit and the transmitting unit in the radio unit. The generating means includes a generating unit for generating test signals, a first

detecting unit for detecting, when a test signal passes the transmitting unit in a radio unit, a first phase shift value for the radio unit, a second detecting unit for detecting when the test signal passes the transmitting unit and the receiving unit in order in the radio unit, a second phase shift value for the radio unit, and a calculating unit for calculating a phase shift difference between the receiving unit and the transmitting unit in a radio unit using the first phase shift value and the second phase shift value of the radio unit, and for setting the calculated phase shift difference as the compensation value for the radio unit.

Applicant submits that Watanabe and Kobayakawa, either alone or in combination, fail to disclose or suggest all the elements of independent Claim 1. Specifically, the cited prior art fails to disclose or suggest at least, "generating the compensation value for each radio unit in accordance with the phase propagation characteristics of the receiving unit and the transmitting unit in the radio unit," as set forth in Claim 1. The Office Action admits that Watanabe fails to disclose or suggest this element, but cites Kobayakawa as curing these deficiencies.

As argued in the first Response dated March 4, 2005, Kobayakawa fails to disclose or suggest at least "generating the compensation value for each radio unit in accordance with the phase propagation characteristics of the receiving unit and the transmitting unit in the radio unit," as recited in Claim 1. The current Office Action additionally cites col. 8, lines 7-18 of Kobayakawa as teaching this element (see Office Action, page 4, lines 1-2). This portion of Kobayakawa discloses:

Further the radio base station may comprise a signal generator for transmitting a signal from a known position within the sector to which the first and second antenna elements are directed, wherein the phase compensation

calculator means 8-*j* calculates a phase compensation amount or a second phase compensation amount by the use of the up-signal from the signal generator on the basis of the phase difference which is existent between the **output signal of the first antenna element 2-1** and the **output signal of the second antenna element 2-*j*** and is obtained from the known position of the signal generator and the positions of the first and second antenna elements. See Kobayakawa, col. 8, lines 7-18 (emphasis added).

However, Kobayakawa fails to disclose or suggest generating the compensation value for each radio unit “in accordance with the phase propagation characteristics of the receiving unit and the transmitting unit in the radio unit.” In Kobayakawa, the first antenna element 2-1 and the second antenna element 2-*j* do not correspond to the receiving unit and the transmitting unit of a single radio unit. As set forth in Kobayakawa, “one reference antenna element out of the plurality of antenna elements directed to the same sector is set as a first antenna element,” and “any antenna element different from said first antenna element is set as a second antenna element.” (see Kobayakawa, col 2, lines 34-36 and 38-39).

Accordingly, the Kobayakawa patent also does not disclose or suggest at least this element of Claim 1.

Further, Claim 1 sets forth at least “a plurality of radio units that each has a transmitting unit, a receiving unit, and an antenna,” and “a second detecting unit for detecting, when the test signal passes the transmitting unit and the receiving unit in order in the radio unit, a second phase shift value for the radio unit.” The Office Action admits that Watanabe fails to disclose or suggest this element, but cites Kobayakawa as curing these deficiencies. However, Kobayakawa teaches that the receivers use multiple

antenna units, labeling them 2-1 up to 2-*n* (see Kobayakawa, col. 4, lines 25-50). In contrast, in the invention of Claim 1, each radio unit has “a transmitting unit, a receiving unit, and an antenna.” This provides a compensation value calculation method that is totally different from that of the cited prior art. For example, the present invention performs transmission/reception using the same antenna, so that a compensation value can be calculated from a test signal which passed through the transmitting unit and the receiving unit of the antenna in this order, and a test signal which passed through only the transmitting unit of the antenna (see Figs. 3 and 4 in the specification).

Similarly, independent Claim 9 recites at least “a generating step for generating a separate compensation value for each unit, each compensation value reflecting phase propagation characteristics of the receiving unit and the transmitting unit in the corresponding radio unit,” “a plurality of radio units that each has a transmitting unit, a receiving unit, and an antenna,” and “a second detecting step for detecting, when the test signal passes the transmitting unit and the receiving unit in order in the radio unit, a phase value for the radio unit.” As discussed above with respect to Claim 1, neither Watanabe nor Kobayakawa, alone or in any combination thereof, disclose or suggest at least these elements of independent Claim 9.

Further, Applicant submits that the alleged combination of these references also does not disclose or suggest the invention of the presently claimed invention. Nor, even if the references were combinable, as suggested in the Office Action, would the combination result in the claimed invention.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. § 2143.03. For at least the reasons provided above, Applicant submits that Watanabe in view of Kobayakawa, either alone or in combination, do not disclose or suggest all the elements of independent Claim 1 or independent Claim 9.

As Claims 4-8 depend from independent Claim 1, and Claims 11 and 12 depend from independent Claim 9, Applicant submits that each of these claims incorporates the patentable aspects therein, and are therefore allowable for at least the reasons set forth above with respect to independent Claims 1 and 9, as well as for the additional subject matter recited therein.

Under U.S. patent practice, the U.S. Patent and Trademark Office has the burden under 35 U.S.C. §103 to establish a *prima facie* case of obviousness. In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the U.S. Patent and Trademark Office itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under 35 U.S.C. §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The U.S. Patent and Trademark Office can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) (prior art could

not be turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002). The Office Action restates the advantages of the present invention to justify the combination of references. There is, however, nothing in the applied references to evidence the desirability of these advantages in the disclosed structure.

As such, Applicant respectfully requests withdrawal of the rejection.

Conclusion

Applicant respectfully submits that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not considered to be timely filed, an appropriate extension of time is requested. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account Number 01-2300, referencing Docket Number 101201-00020.

Respectfully submitted,

for, NY Office, Reg #44275
Charles M. Marmelstein
Registration Number 25,895

Customer Number 004372
ARENT FOX PLLC
1050 Connecticut Avenue, NW
Suite 400
Washington, DC 20036-5339
Telephone: 202-857-6000
Fax: 202-638-4810

CMM/SCO:vmh